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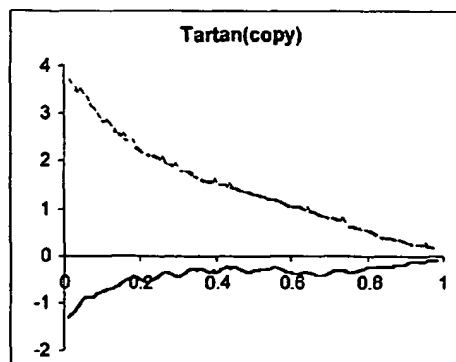
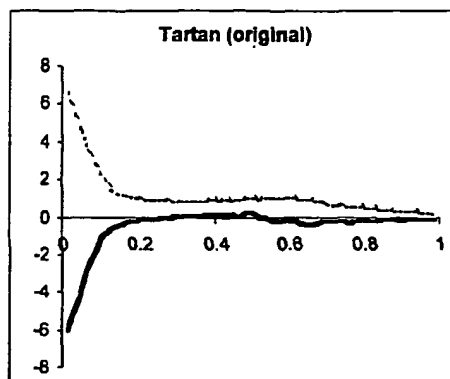
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(54) Title: METHOD OF DETECTING COUNTERFEIT DOCUMENTS BY PROFILING THE PRINTING PROCESS



(57) Abstract: This invention is concerned with the automatic detection of counterfeit documents, particularly checks and currency, through the analysis of images. The method relies on the production of profiles which represent the characteristics of authentic documents and their comparison with similarly extracted profiles from putative authentic documents. In one implementation involving the mass processing of checks the authentic profiles are continuously updated by analysis of large numbers of contemporarily processed checks.

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# INTERNATIONAL SEARCH REPORT

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PCT/GB 03/01614

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 G07D7/12 G07D7/20

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G07D B41F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 165 734 A (BANK OF ENGLAND) 27 December 1985 (1985-12-27) page 1, line 9 - line 16 page 1, line 26 - line 32 page 6, line 13 - line 33	1-15
X	EP 0 527 285 A (KOENIG & BAUER AG) 17 February 1993 (1993-02-17) the whole document	1,7-9, 11-13

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0165734	A	27-12-1985	AT 78354 T 15-08-1992
			AU 587747 B2 24-08-1989
			AU 4373185 A 02-01-1986
			CA 1281125 C 05-03-1991
			DE 3586339 D1 20-08-1992
			DE 3586339 T2 11-02-1993
			DK 282185 A 23-12-1985
			EP 0165734 A2 27-12-1985
			ES 8704649 A1 16-06-1987
			ES 8801455 A1 01-03-1988
			GB 2160644 A ,B 24-12-1985
			GR 851508 A1 25-11-1985
			HK 89888 A 11-11-1988
			IE 56706 B1 06-11-1991
			IN 167911 A1 05-01-1991
			JP 1942920 C 23-06-1995
			JP 6069219 B 31-08-1994
			JP 61082595 A 26-04-1986
			JP 1846428 C 07-06-1994
			JP 2118886 A 07-05-1990
			JP 5059473 B 31-08-1993
			JP 1835809 C 11-04-1994
			JP 2132564 A 22-05-1990
			JP 5047866 B 19-07-1993
			KR 9210482 B1 28-11-1992
			MX 172127 B 06-12-1993
			MX 159061 A 13-04-1989
			NO 852520 A ,B, 23-12-1985
			US 5537615 A 16-07-1996
			US 5255331 A 19-10-1993
			ZA 8504361 A 30-04-1986
EP 0527285	A	17-02-1993	AT 156754 T 15-08-1997
			AU 664167 B2 09-11-1995
			AU 1143692 A 18-02-1993
			BR 9203103 A 30-03-1993
			CA 2075733 A1 13-02-1993
			CN 1069227 A ,B 24-02-1993
			CN 1071272 A ,B 21-04-1993
			DE 4142481 A1 18-02-1993
			DE 4206366 A1 18-02-1993
			DE 59208384 D1 28-05-1997
			DE 59208791 D1 18-09-1997
			DK 527285 T3 30-03-1998
			EP 0527285 A2 17-02-1993
			EP 0540833 A2 12-05-1993
			ES 2106790 T3 16-11-1997
			FI 923586 A 13-02-1993
			GR 3025302 T3 27-02-1998
			JP 2957359 B2 04-10-1999
			JP 5229107 A 07-09-1993
			JP 3288437 B2 04-06-2002
			JP 5269975 A 19-10-1993
			RU 2109340 C1 20-04-1998
			RU 2109341 C1 20-04-1998
			US 5317390 A 31-05-1994
			US 5384859 A 24-01-1995
			ZA 9202208 A 30-12-1992